SNC2D Calcium and Water Lab

Purpose: To observe the reaction between calcium and water.

To collect and identify the products of this reaction.

Materials:

Large test tube

200 mL beaker

wooden splint

candle

matches

tweezers

calcium

tap water

phenolphthalein

Procedure:

1. Make initial observations of both tap water and calcium metal. Do not touch the calcium metal with your bare hands.
2. Fill both a 200 mL beaker and a large test tube with tap water. Cover the mouth of the test tube you’re your index finger and invert the tube so that its mouth is submerged in the beaker water. Pour off some of the beaker water so that it is only half full. The test tube should now be upside down and full of water.
3. Using tweezers, place a small piece of calcium metal into the beaker water and immediately trap it in the mouth of test tube. Record your observations.
4. Once the water in the test tube has been displaced, light a wooden splint. Slowly remove the test tube from the beaker keeping it facing down. Keep firm hold of the test tube and be prepared for a reaction. Bring the flaming splint near the mouth of the test tube. Observe. Put the splint out. Record your observations.
5. Record observations of the liquid in the beaker.
6. Place one drop of phenolphthalein into the liquid in the beaker. Record your observations.
7. Clean up your work area. Make sure to follow your teacher’s directions for safe disposal of materials. Wash your hands thoroughly.

Discussion Questions

1. What was the purpose of testing the large test tube with a lighted splint? Explain the result.
2. Why must you be careful to avoid touching calcium metal? Be specific and use specific vocabulary.
3. What was the purpose of the phenolphthalein? What is phenolphthalein? When does it change colour? How does the colour change help to identify the liquid product?
4. What evidence do you have that chemical reactions occurred during this lab? Describe three specific examples in detail.
5. Write both word and balanced chemical equations for the following reactions: (A) calcium with water and (B) flaming splint test.
6. Describe one practical use of each of the products of the calcium and water reaction.

SNC2D Calcium and Water Lab Marking Scheme

Name:

FORMAL LAB REPORT DUE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **COMPONENT** | **INQ** | **COM** | **APP** |
| Introduction  *(purpose)* |  | /1 |  |
| Materials |  | /1 |  |
| Procedure  *(past passive tense, accurate)* |  | /3 |  |
| Results  *(table format,*  *thorough, detailed)* |  | /4 |  |
| Discussion Question 1  *(splint test)* | /2 |  |  |
| Discussion Question 2 *(don’t touch calcium)* |  |  | /2 |
| Discussion Question 3 *(phenolphthalein)* | /4 |  |  |
| Discussion Question 4 *(evidence of reactions)* | /3 |  |  |
| Discussion Question 5 *(Equations)* | /4 |  |  |
| Discussion Question 6 *(practical use of products)* |  |  | /2 |
| Conclusion  *(refer to purpose)* |  | /1 |  |
| References  *(APA format)* |  | /1 |  |
| Totals | /13 | /11 | /4 |